Claims

What is claimed is:

1. A method of managing spatially related defects on a data storage media surface in a data storage device comprising:

identifying defect locations on the media surface;

determining whether the location of an identified defect is within a predetermined window of another identified defect location on the media surface;

if the location is within the predetermined window, characterizing the defects in the window as a scratch; and.

generating a scratch tracking table having a start index and an end index for each scratch.

2. The method according to claim 1 further comprising padding the scratch.

3. The method according to claim 1 wherein the characterizing operation comprises:

assigning a unique scratch index to the scratch; and

associating each defect within the window with the unique scratch index.

4. The method according to claim 3 further comprising:

generating a scratch index table associating each identified defect with a scratch index.

5. The method according to claim 1 wherein the determining operation comprises:

loading an identified defect location in a register; and

comparing the defect location and a last identified defect location of each identified scratch against predetermined window criteria.

6. The method according to claim 7 wherein the predetermined window criteria comprises a number of cylinders and a number of bytes.

7. A method comprising:

identifying defect locations on a data storage media;

tabulating the identified defects in a defect list;

determining whether one or more defect locations lies within a predetermined window of another defect location;

assigning a unique scratch index to each defect location within the predetermined window;

generating a scratch tracking table listing a start index for a first defect location in the window and an end index for a last defect location in the window for each scratch index assigned; and

generating a scratch index table associating a scratch index with each defect location.

8. The method according to claim 7 further comprising:

using the scratch tracking table and the scratch index table to determine whether a read or write command is to be redirected to another data storage media location.

9. The method according to claim 7 further comprising:

retrieving an entry in the scratch tracking table having a first scratch index;

searching the scratch index table for defect locations associated with the first scratch index;

padding the scratch; and

repeating the retrieving, searching and padding operations for a next scratch index.

10. The method according to claim 9 wherein the repeating operation includes a query operation asking whether an end of the scratch tracking table has been reached prior to retrieving the next scratch index.

11. A system for managing scratches on a data storage media in a data storage device comprising:

a controller adapted to control access by a host to and from the data storage media;

a memory coupled to the controller;

a scratch index table in the memory having a unique index entry for each identified defect location on the data storage media and an associated scratch index entry for each defect location; and;

a scratch tracking table in the memory having, for each scratch index entry, a start index, and end index, and an end defect location for each identified scratch index.

12. The system according to claim 11 further comprising a buffer in the controller wherein the scratch tracking table and scratch index table are utilized in the buffer to identify defect locations.

13. The system according to claim 11 further comprising:

an operational sequence for identifying defect locations on the media surface;

an operational sequence for determining whether the location of an identified defect is within a predetermined window of another identified defect location on the media surface;

an operational sequence for characterizing the defects in the window as a scratch, if the location is within the predetermined window; and.

an operational sequence for generating a scratch tracking table having a start index and an end index for each scratch.

14. The system according to claim 13 further comprising an operational sequence for padding each scratch in the scratch tracking table.

15. The system according to claim 13 wherein the characterizing operational sequence comprises:

assigning a unique scratch index to the scratch; and

associating each defect within the window with the unique scratch index.

16. A data storage device comprising:

a data storage medium;

a controller coupled to the data storage medium;

a plurality of sequences for generating and using a scratch tracking table and a scratch index table to characterize defects identified on the data storage medium as belonging to one or more identified scratches.

17. The data storage device according to claim 16 further comprising a sequence for padding identified scratches on the medium.

18. The data storage device according to claim 16 wherein a sequence for generating a scratch tracking table includes operations of:

identifying defect locations on the data storage medium;

tabulating the identified defects in a defect list;

determining whether one or more defect locations lies within a predetermined window of another defect location;

assigning a unique scratch index to each defect location within the predetermined window; and

generating the scratch tracking table listing a start index for a first defect location in the window and an end index for a last defect location in the window for each scratch index assigned.

19. The data storage device according to claim 18 further comprising a sequence for generating a scratch index table associating a scratch index with each defect location.

20. The data storage device according to claim 19 further comprising a sequence for padding each scratch listed in the scratch tracking table.